

# ChronTrol®

## QUICK REFERENCE OPERATOR'S GUIDE

### "CD" MODELS



#### INTRODUCTION

You may set up to 40 independent ON/OFF programs. The programs (event times) are assigned in any combination or sequence to the available circuits (up to 16).

A program consists of a circuit assignment and an ON and/or OFF time. ON/OFF programs will repeat at the same time every day. Each program may also contain specific "cycle," "day omission," and "variation" data allowing you to customize the operation of each program.

Program ON/OFF times are set in hours, minutes, AM or PM and seconds if desired. Programmed ON/OFF operations are accurate to within one second.

#### TO UNLOCK KEYBOARD

ChronTrol features a locking keyboard. Once locked, the keyboard cannot be used, thus preventing accidental or unwanted entries. To lock the keyboard simply press the LOCK key.

To unlock ChronTrol's keyboard press the unlocking code numbers 103. The keyboard is now unlocked and ready to accept program data.

#### TO MANUALLY SWITCH A CIRCUIT ON OR OFF

You can immediately switch a circuit ON or OFF without waiting for or disturbing programmed ON/OFF times. To turn a circuit ON or OFF press the circuit number you want to switch and then press ON/OFF.

If the circuit was ON it will be turned OFF. If the circuit was OFF it will be turned ON.

#### TO SET THE TIME OF DAY

1. Press TIME
2. Enter the current Time of Day in hours and minutes, AM or PM
3. Press ENTER

The display is blank  
The Time of Day is displayed  
The Time of Day is set and displayed

The Time of Day is used as the starting point for all programming operations. If you become lost or confused during programming simply press TIME and start over.

#### TO PROGRAM ON/OFF OPERATIONS

1. Press the program number to be used (1 through 40)
2. Press CIRCUIT
3. Press the circuit number (1 through 16) on which you want the program to occur
4. Press ON
5. Press the desired ON time in hours and minutes, AM or PM
- \* 6. Press SECOND
- \* 7. Press the desired seconds
8. Press OFF
9. Press the desired OFF time in hours and minutes, AM or PM
- \* 10. Press SECOND
- \* 11. Press the desired seconds
12. Press ENTER

The program number selected is displayed  
If no previous circuit assignment has been made 00 is displayed  
The circuit number selected is displayed  
  
000 is displayed if no previous ON time has been set  
The ON time is displayed  
00 is displayed  
The seconds are displayed  
000 is displayed if no previous OFF time has been set  
The OFF time is displayed  
00 is displayed  
The seconds are displayed  
All ON/OFF information is stored and the Time of Day is displayed

#### TO REVIEW A PROGRAM

1. Press the program number to be reviewed
2. Press CIRCUIT
3. Press ON
- \* 4. Press SECOND
5. Press OFF
- \* 6. Press SECOND
7. Press TIME

The selected program number is displayed  
The assigned circuit number is displayed  
The ON time is displayed  
The ON time to the second is displayed  
The OFF time is displayed  
The OFF time to the second is displayed  
Review is completed and the Time of Day is displayed

\*OPTIONAL: May be skipped if ON/OFF times are not set or reviewed to the second.

#### TO CLEAR A PROGRAM

1. Press the program number to be cleared	The selected program number is displayed
2. Press CIRCUIT	The assigned circuit number is displayed
3. Press 0	Circuit assignment is cleared and 00 is displayed
4. Press ON	The ON time is displayed
5. Press 0	The ON time is cleared and 000 is displayed
6. Press OFF	The OFF time is displayed
7. Press 0	The OFF time is cleared and 000 is displayed
8. Press ENTER	All circuit and ON/OFF data is cleared and the Time of Day is displayed

#### TO ADJUST THE WEEK LENGTH

When you start ChronTrol for the first time it begins operations on Day 1 of a 7 day week. The other days of the week are then automatically numbered consecutively.

For example if you start your timer on Friday, then Friday = Day 1, Saturday = Day 2 and so on with Day 7 = Thursday. If you want Day 1 to equal some specific Day of the Week (Monday for example) advance ChronTrol's Time of Day clock to 11:59 PM and run through 12:00 AM (midnight). Each time the clock runs through midnight the Day of the Week advances one day.

However, you can adjust ChronTrol's week length, from 1 through 8 days in one day increments.

Adjust the week length as follows:

1. Press WEEK	From left to right, the number of the current day of the week and the week length are displayed
2. Press the number of the desired week length (1 through 8)	Day 1 and the selected week length are displayed
3. Press ENTER	Week length data is stored and the Time of Day is displayed

Review the Day of the Week and the Week length as follows:

1. Press WEEK	From left to right, the number of the current day of the week and the week length are displayed
2. Press TIME	Review is completed and the Time of Day is displayed

#### TO OMIT PROGRAMMED OPERATIONS

Using ChronTrol's Day of the Week clock and Day Omit feature you can selectively skip (omit) the operation of any program(s) on any day or days of the week.

Omit a programmed operation as follows:

1. Press the program number to be addressed	The selected program number is displayed
2. Press DAY OMIT	00 is displayed if no previous Day Omit data has been entered
3. Press the number corresponding to <b>each</b> day to be omitted	A code is displayed. Refer to Day Omission chart for interpretation
4. Press ENTER	Day Omit data is stored and the Time of Day is displayed

Review a program's Day Omission schedule as follows:

1. Press the program number to be addressed	The selected program number is displayed
2. Press DAY OMIT	A code is displayed. Refer to Day Omission chart for interpretation
3. Press TIME	Review is completed and the Time of Day is displayed

Clear omitted days from a program's Day Omission Schedule as follows:

1. Press the program number to be modified	The selected program number is displayed
2. Press DAY OMIT	A code number is displayed
3. Press the number of the Day to be removed, followed by CLEAR; repeat for each day to be removed	Displayed code changes as the day is cleared
4. Press ENTER	Days are cleared and the Time of Day is displayed

### DAY OMISSION CHART

DISPLAYED CODE 1	2	3	4	5	6	7	8	DISPLAYED CODE 1	2	3	4	5	6	7	8	DISPLAYED CODE 1	2	3	4	5	6	7	8	DISPLAYED CODE 1	2	3	4	5	6	7	8			
00								40								80								C0										
01	X							41	X							81	X							C1	X						X			
02		X						42		X						82		X						C2		X					X			
03	X	X						43	X	X						83	X	X						C3	X	X					X			
04			X					44		X	X					84			X					C4			X				X			
05	X		X					45	X		X					85	X		X					C5	X		X				X			
06		X	X					46		X	X					86		X	X					C6		X	X				X			
07	X	X	X					47	X	X	X					87	X	X	X					C7	X	X	X				X			
08				X				48			X					88				X				C8			X				X			
09	X		X					49	X		X					89	X		X					C9	X		X				X			
0A	X		X					4A	X		X					8A	X		X					CA		X	X				X			
0b	X	X	X					4b	X	X	X					8B	X		X					Cb	X	X	X				X			
0C			X	X				4C			X	X				8C			X	X				CC			X	X			X			
0d	X		X	X				4d	X		X	X				8D	X		X	X				Cd	X		X	X			X			
0E	X	X	X	X				4E		X	X	X				8E		X	X	X				CE		X	X	X			X			
0F	X	X	X	X				4F	X	X	X	X				8F	X	X	X	X				CF	X	X	X	X			X			
10					X			50				X	X			90				X				d0			X	X	X		X			
11	X		X					51	X			X	X			92	X			X				d1	X		X	X	X		X			
12		X		X				52		X		X	X			93	X	X		X				d2		X	X	X	X		X			
13	X	X	X					53	X	X		X	X			94			X	X				d3	X	X	X	X	X		X			
14			X	X				54			X	X				95	X		X	X				d4			X	X	X		X			
15	X	X	X	X				55	X		X	X				96	X		X	X				d5	X		X	X	X		X			
16	X	X	X	X				56	X	X	X	X				97	X	X	X	X				d6	X	X	X	X	X		X			
17	X	X	X	X				57	X	X	X	X				98			X	X				d7	X	X	X	X	X		X			
18				X	X			58			X	X				99	X		X	X				d8			X	X	X		X			
19	X		X	X				59	X			X	X			9A	X		X	X				d9	X		X	X	X		X			
1A		X	X	X				5A		X		X	X			9B	X		X	X				dA			X	X	X		X			
1b	X	X	X	X				5b	X	X		X	X			9C			X	X				db	X		X	X	X		X			
1C			X	X	X			5C			X	X				9D	X		X	X				dC			X	X	X		X			
1d	X	X	X	X				5D	X		X	X				9E	X		X	X				dE	X		X	X	X		X			
1E	X	X	X	X				5E	X		X	X				9F	X		X	X				dF	X		X	X	X		X			
1F	X	X	X	X				5F	X	X	X	X				70			X	X				E0			X	X	X		X			
20						X		61	X				X	X		80	A1	X			X	X			E1	X		X	X	X		X		
21	X			X				62		X			X	X		81	A2		X			X	X			E2		X	X	X	X		X	
22		X			X			63			X		X	X		82	A3	X	X			X	X			E3	X	X	X	X	X		X	
23	X	X			X			64				X	X			83	A4			X			X			E4			X	X	X		X	
24			X	X				65	X				X	X		84	A5		X			X	X			E5	X		X	X	X		X	
25	X		X	X				66		X		X		X		85	A6		X		X		X			E6		X	X	X	X		X	
26		X	X	X				67	X		X		X	X		86	A7	X	X		X		X			E7	X	X	X	X	X		X	
27	X	X	X	X				68			X		X	X		87	A8			X			X			E8			X	X	X		X	
28					X	X		69	X			X	X			88	A9		X		X		X			E9	X		X	X	X		X	
29	X		X	X				70				X	X			89	AA		X		X		X			EA		X	X	X	X		X	
2A		X	X	X				71	X			X	X			90	Ab		X		X		X			Eb	X		X	X	X		X	
2b	X	X	X	X				72		X			X	X			91	AC			X			X			Ec			X	X	X		X
2C			X	X	X			73	X			X	X			92	Ad		X		X		X			Ed	X		X	X	X		X	
2d	X	X	X	X				74			X	X				93	AE			X			X			EE			X	X	X		X	
2E	X	X	X	X				75	X		X	X				94	Af			X			X			FF	X		X	X	X		X	
2F	X	X	X	X				76	X		X	X				95	bd			X			X				X		X	X	X		X	
30								77	X		X	X				96	b7		X		X		X			F7	X		X	X	X		X	
31	X		X	X				78			X	X				97	b8			X			X			F8			X	X	X		X	
32		X		X	X			79	X			X	X			98	b9			X			X			F9	X		X	X	X		X	
33	X	X	X	X				7A	X		X	X				99	bA			X			X			FA	X		X	X	X		X	
34			X	X	X			7B	X		X	X				9A	bb			X			X			Fb	X		X	X	X		X	
35	X	X	X	X				7C			X	X				9B	bc			X			X			FC			X	X	X		X	
36	X	X	X	X				7D	X		X	X				9C	bd			X			X			FE	X		X	X	X		X	
37	X	X	X	X				7E	X		X	X				9D	bE			X			X			FF	X		X	X	X		X	
38				X	X			7F	X		X	X				9E	bF			X			X				X		X	X	X		X	

### TO ADJUST A PROGRAM'S CYCLE LENGTH

Your timer begins operations with a zero (00) hour Cycle length setting for each program. With no additional Cycle length settings, programmed operations will repeat at the same time every day (every 24 hours).

However, **each** program can contain specific Cycle length data, allowing you to adjust the rate at which a programmed operation will repeat (cycle).

Cycle length settings are made in 1 hour increments from zero (00) through twenty-four (24) hours.

Adjust a program's Cycle length as follows:

1. Press the program number you want to address
2. Press CYCLE
3. Press the desired Cycle length
4. Press ENTER
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Review a program's Cycle length setting as follows

1. Press the program number to be reviewed
2. Press CYCLE
3. Press TIME

The selected program number is displayed

The Cycle length of the selected program is displayed

Review is completed and the Time of Day is displayed

#### TO VARY ON/OFF TIMES

ON and/or OFF times can be automatically advanced or retarded from 1 second to 1 hour. Variation settings are made in minutes and seconds, + or -. Plus (+) Variation is used with a zero hour Cycle length for short interval, repetitive operations. The difference between the ON and OFF times establishes the duration of the ON period and the Variation setting determines the rate at which the operation repeats.

Variation with a twenty-four hour Cycle length setting is used to simulate photoperiodic variation and to track daily changes in sunrise and sunset times.

Set ON and OFF Variation as follows:

1. Press the program number you want to address
2. Press CIRCUIT
3. Press ON
4. Press VARY
5. Press the desired variation data in minutes and seconds, + or -
6. Press OFF
7. Press VARY
8. Press the desired variation data in minutes and seconds, + or -
9. Press ENTER

The program number selected is displayed

The assigned circuit number is displayed

The ON time is displayed

If not previously set 0000 is displayed

The selected Variation data is displayed

The OFF time is displayed

If not previously set 0000 is displayed

The selected Variation data is displayed

Variation data is stored and the Time of Day is displayed

#### INTERVAL TIMING GUIDE

If your timer is equipped with an Interval button or contact you can use ChronTrol as an interval timer.

The Interval switch resets the Time of Day clock to 000:00 (zero hour) and counting, and advances the Day of the Week to the next day.

Although no operations will begin at time = 000:00, use this as a reference point for all interval settings.

You can set as many as 40 specific timing intervals (programs), assigning them to occur in any sequence or combination on up to 16 independent circuits.

Timed intervals are set and measured in hours, minutes and seconds. The length of an interval is determined by its ON (START) and OFF (STOP) time settings.

Programmed intervals can be set to begin from one second to one week after Interval switch activation.

The start of a programmed interval is determined by Interval switch activation and its ON (START) time setting.

For example, if a program's ON time is 000:05 (five seconds) and OFF time is 001:35 (one minute, thirty five seconds), then the program will begin 5 seconds after Interval switch activation and terminate 1 minute and 30 seconds later.

#### MULTIPLE STEP INTERVAL TIMING USING WEEK LENGTH AND DAY OMIT

ChronTrol's adjustable Week Length and Day Omit features can be used when two or more (up to 8) different timing sequences are involved in a given process or experiment.

Using these features you can program the number of steps in a process and their sequence of occurrence.

Recall that each Interval switch actuation resets the Time of Day to 000:00 (zero hour) and advances the Day of the week to the next day.

The number of steps in a process is determined by the Week length setting, and their sequence of occurrence is established by the Day Omission schedule of each step.

For example, if your process requires 3 different timed steps and the onset of each step is determined by outside factors, then set a 3-day Week length and omit days 2 and 3 from programs in Step one, days 1 and 3 from programs in Step two, and days 1 and 2 from programs in Step three.

Beginning operations with Day 3 of a 3-day Week setting, the first press of the Interval switch will activate programs in Step one, the second press Step two and so on with the fourth press activating Step one again. Each program occurs in sequence and is activated by the operator when appropriate.

## CHRON~~T~~ROL® SERVICE HOTLINE

**1-800-854-1990**

(Continental U.S.A. Except Calif.)

If you think you are having trouble with  
your CHRON~~T~~ROL® Timer call our Service  
Department Hotline. They may be able to  
correct the difficulty over the phone.